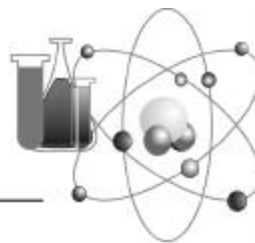


# FACTS ON FILE EMSP

## Environmental Management Science Program



### Project Highlights

*The Environmental Management Science Program (EMSP) is funding basic research projects focused on solving the most difficult problems that threaten the closure plans of DOE sites. This fact sheet highlights just one.*

### Mechanics of Bubbles in Sludges and Slurries

The objective of the research is to gain a fundamental understanding of the interactions between gas bubbles and tank waste during barometric pressure fluctuations. This understanding will have a direct influence on improving the accuracy of gas volume estimates for Hanford tanks from the nonintrusive level and pressure measurements. The elucidation of the bubble waste interactions should also provide more accurate models for estimating waste properties from level/pressure data and should quantify the effect of barometric pressure fluctuations on the slow release of bubbles.

**Locations:** Pacific Northwest National Laboratory,  
Lawrence Berkeley National Laboratory, University  
of Texas

**Year of Award:** 1997

**Amount of Award:** \$1,132,000

**Office of Environmental Management (EM)**  
**Problem Area:** High Level Waste

**Office of Science (SC) Scientific Category/Sub-  
Category:** Engineering Science/Bubble Mechanics  
and Sonification

**Research Value/Impact:** The result of these studies will aid in eliminating foaminess in three-phase gas/liquid/solid systems, thereby significantly improving treatment of high level waste sludge and slurries, and will aid in obtaining accurate measurement of retained gas from level/pressure data thereby allowing more realistic evaluation of safety issues at high level waste sites.

**Lead Principal Investigator:**  
Phillip A. Gauglitz  
Pacific Northwest National Laboratory  
(509) 372-1210

William R. Rossen  
University of Texas  
(512) 471-3246

**Other Principal Investigators:**  
Morton M. Denn  
Lawrence Berkeley National Laboratory  
(510) 642-0176

**More Information on the Web:**  
<http://www.em.doe.gov/science> or  
<http://www.id.doe.gov/emsystems/emsp>

